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ABSTRACT

A self-observation training program developed for teachers was tried out with a group of intern teachers. After some modifications of the program, the effects of the training on selected teacher and student behaviors were assessed by two experienced elementary teachers. Changes in three teacher behaviors (contingent praise, positive nonverbal responses, and negative commands) and their effects on four student variables (inappropriate verbal behavior, inappropriate nonverbal behavior, on-task behavior, and classroom noise) were examined using a multiple-baseline design. Self-observation was found to be associated with increases in positive teacher behaviors when those behaviors were being self-observed. The accuracy of the teachers' self-observation ranged from a mean of 41 percent to a mean of 88 percent. Self-observation by teachers was associated with some positive changes in certain student behaviors. In general, the effects of self-observation on the teachers were not maintained after the teachers discontinued observing and recording their behavior. (Authors)

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EFFECTS OF BEHAVIORAL SELF-OBSERVATION ON ELEMENTARY TEACHERS AND STUDENTS

C. Gaylord Hendricks, Carl E. Thoresen, and
David R. Hubbard, Jr.

School of Education
Stanford University
Stanford, California

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Introductory Statement

The Center's mission is to improve teaching in American schools. Its work is carried out through five programs:

- Teaching Effectiveness
- The Environment for Teaching
- Teaching Students from Low-Income Areas
- Teaching and Linguistic Pluralism
- Exploratory and Related Studies

This report is drawn from work conducted in the Program on Teaching Effectiveness. The Self-Observation Training Program developed at the Center and used in this study is part of broader research aimed at devising ways of training teachers in self-management skills.

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EFFECTS OF BEHAVIORAL SELF-OBSERVATION ON ELEMENTARY TEACHERS AND STUDENTS[1]

C. Gaylord Hendricks, Carl E. Thoresen, and David R. Hubbard, Jr.[2]

Behavioral self-observation, or self-monitoring, is a set of procedures whereby individuals gather data on their own behavior, chiefly in natural settings (Thoresen, Hubbard, Hannum, Hendricks, & Shapiro, 1973a, 1973b; Thoresen & Mahoney, 1974). These procedures have considerable relevance in psychotherapy and education. Not only in self-observation an economical means of collecting data of interest to clinicians and researchers, it also is the only means of gathering information on certain classes of behavior such as covert or private events. There is evidence that self-observation can also be a useful technique for changing behavior in certain situations (Thoresen & Mahoney, 1974).

Studies have investigated the accuracy and reliability of self-observation as well as its effects on behavior. Kazdin (1974), after reviewing the literature on self-observation, concluded that few studies have shown dramatic effects of self-observation on behavior and that the effects of self-observation typically attenuate with time. He further noted that change resulting from self-observation does not depend upon accurate or reliable reporting on the part of the subject and that highly reliable self-observation does not insure behavior change in the absence of other contingencies.

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[1]This paper is based on the doctoral dissertation of C. G. Hendricks, "The Development and Evaluation of a Self-Observation Training Program for Teachers" (Stanford University, 1973). An earlier draft of this paper was the subject of a presentation at the Annual Meeting of the American Educational Research Association, Chicago, April 1974.

[2]C. Gaylord Hendricks is a Research and Development Associate at the Stanford Center for Research and Development in Teaching. Carl E. Thoresen is a Research and Development Associate at SCRDT and an Associate Professor of Education at Stanford University. David R. Hubbard, Jr., is at the School of Medicine, University of Connecticut.

With the increased use of self-management strategies in psychotherapy and education, the use of self-observation procedures has accelerated (Thoresen & Mahoney, 1974). Because self-management programs require clients to carry out their own change program based on sequentially gathered data, a self-observation component is usually involved.

To date, few standardized programs to train teachers in behavioral self-observation skills have been reported (for one example, see Thomas, 1971). The present study examined the following questions:

1. Is teacher self-observation associated with changes in the rates of the behaviors observed?
2. How accurate are teachers in self-observing their behavior in the classroom?
3. Is teacher self-observation associated with changes in student behavior?
4. How do teacher trainees rate the program in terms of clarity, usefulness, and enjoyment?

Method

Sixteen interns in the Stanford Secondary Teacher Education Program volunteered to try out a self-observation training program as part of an elective course (see Clark, Hendricks, & Sousa, 1974). The interns practiced four self-observation skills--discriminating among types of behavior, counting, charting data, and evaluating data--in three two-hour sessions on separate days. The program used a training manual, videotapes, audiotapes, and role-playing materials. At the end of each session the interns rated the training materials on five dimensions: satisfaction with participation, clarity of instructions, clarity of text, enjoyment, and predicted usefulness of the training. The interns were given a test after their training to determine how well they had mastered the skills. The interns regarded the program as clear, enjoyable, and moderately useful. The program was subsequently revised on the basis of their ratings.

Following the administration of the program to the interns, two volunteer experienced elementary teachers participated in the present study. A team of two trained classroom observers was placed in each teacher's classroom, one observer to record teacher behavior and one to record student behavior. The teachers were told that the observers were

recording student behavior only. The observers collected data daily for a total of 35 and 37 days of classroom observation. After the experiment they returned to the classrooms twice for follow-up observations.

Dependent Variables

Three teacher behaviors were defined and observed: (1) contingent verbal praise, i.e., giving approval to a student or group of students in response to their academic or social behavior, (2) positive nonverbal behavior, i.e., giving approval to a student by means of physical contact such as hugging or patting, and (3) negative commands, i.e., conveying an implicit threat to a student or group of students if they did not comply with a stated command. Thus two positive teacher behaviors and one negative teacher behavior were observed.

Four student variables were observed: (1) inappropriate verbal behavior such as yelling, swearing, and talking without permission, (2) inappropriate nonverbal behavior such as hitting, slamming books, and ripping paper, (3) on-task behavior, in which the student was observed to be engaged in the assigned task, and (4) classroom noise level in decibels.

External Observation

The external observers used a time-sampling format that divided the 45-minute daily observation period into 10-second segments. To insure that the two external observers were synchronized (recording in the same segment), they were linked via earphones to an audio cassette tape player which announced the numbers 1-135, one at a time, followed by a 10-second observation period. The numbers on the tape corresponded to numbers on an observation form.

Student behaviors were observed in alternating 10-second segments. The end of each observation period was signaled by the word "rest." The rest period lasted 10 seconds, and was designed to allow the observer to locate the next student. In a typical 45-minute session, 135 student observations were made. Each day five children were selected randomly from the classroom. With the aid of class photographs, the observers memorized the names of the children during the observer training sessions. One child was observed for 10 seconds; during the 10-second rest period, the next child was located. Thus during the 135 segments of each day, each child was observed 27 times.

On-task behavior was recorded on a dichotomous basis, whereas frequency counts were made of the other two student behaviors. Noise level, read from a decibel meter suspended from the center of the ceiling, was recorded at the end of each 10-second segment.

The three categories of teacher behavior were simultaneously observed in continuous 10-second segments for 45 minutes for a total of 270 observations per day.

Reliability checks were made by a fifth observer, who each day observed 30 segments of student behavior in one classroom and then observed the teacher in the other classroom. Reliability was determined by dividing the number of agreements by the number of agreements plus disagreements.

Design

A single subject, multiple-baseline research design was employed. Following the first baseline period, in which all four student and three teacher behaviors were observed, the two teachers were trained in self-observation skills, using the same program used to train the group of interns. The teachers then self-observed, in succession, each of the three teacher behaviors during three seven-day phases. The behavior to be observed was defined for the teacher on the first morning of each self-observation phase. The self-observation phases were followed by post-self-observation phases. One and two weeks after the end of the post-self-observation phases the observers returned to the classrooms for one follow-up observation session. The design of the study is presented in Figure 1 (page 10).

The self-observation procedure consisted of four operations: (1) noticing the behavior, (2) counting it with a specially designed two-channel wrist counter, (3) entering the count on a chart at the end of the self-observation period, and (4) analyzing the trend of the data at the end of each phase. The teachers self-observed during the same period in which the external observers collected data.

Data Analysis

Using data collected by the external observers, the effect of teacher self-observation was assessed by comparing the daily rates of the three teacher behaviors during self-observation with rates before and after

self-observation. The data were analyzed using the median-slope method (Thoresen & Anton, 1973; White, 1972). This procedure employs a median-based regression line for each phase. The regression lines of adjacent phases are compared to find significant changes in performance between phases. Change was assessed by comparing both the slope (or line of progress) of the phases and the between-phase step, which indicates the immediate effect of treatment. In addition, the overall changes (slope and step) of phases were compared. The nonparametric binomial test was used to determine the significance of these changes (Siegel, 1956).

Results

Effects of Teacher Self-Observation on Teacher Behavior

Data for positive nonverbal behavior are presented in Figure 2. The results of the binomial tests are presented in Table 1. All of these data are from the external classroom observers.

A statistically significant increase in positive nonverbal behavior was found during self-observation for Teacher 2; this behavior significantly decreased when self-observation was discontinued. Although the behavior appeared to increase toward the end of the post-self-observation phase, this increase was due to factors other than self-observation. For Teacher 1, self-observation had an immediate effect (step), but the self-observation phase failed to differ in general from the baseline phase.

Data for contingent verbal praise are presented in Figure 3. The binomial results are presented in Table 2. Teacher 2 showed a significant immediate increase (step), but the direction or slope of change for the self-observation phase was decreasing. In contrast, in the post-self-observation phase, the slope differed significantly while the step did not. Teacher 1 increased her praises during the baseline phase, and self-observation failed to alter this trend significantly. However, an abrupt reduction took place after self-observation was discontinued.

Self-observation did not have a significant effect on decreasing negative commands in the present study, although the data were difficult to interpret, since negative commands occurred infrequently in one teacher's classroom. In the other classroom, negative commands occurred more frequently, but self-observation did not significantly alter their occurrence.

The follow-up observations suggested that the rates of all behaviors were maintaining at a rate not substantially different from the post-self-observation phase.

Accuracy of Self-Observation

The accuracy of self-observation was found by comparing the teacher's daily count with that of external observers. Figure 4 presents the daily percentage of agreement between the teacher and the observers. The data suggest that the accuracy of self-observation was highly variable. Teacher 2 was clearly more accurate than Teacher 1. Both teachers indicated that they tended to forget to self-observe when there were distractions in the classroom. The accuracy of self-observation was moderate to high.

Effects of Teacher Self-Observation on Student Behavior

There were mixed changes in student behavior during the phases in which the teachers self-observed. Each teacher engaged in self-observation during 3 phases, for a total of 6 self-observation phases. Data on four student variables were collected during each self-observation phase. Thus there were a total of 24 combinations in which teacher behavior might have affected student behavior. Twelve combinations showed positive changes in student behavior; 5 showed negative changes; and no change was evident in 7. Thus, in half of the combinations, or, half of the time teachers self-observed, student behavior was observed to change in a positive direction.

In Teacher 1's classroom, inappropriate verbal and nonverbal behavior decreased during the self-observation of contingent verbal praise and negative commands. Inappropriate nonverbal behavior also decreased during the self-observation of positive nonverbal behavior. Student on-task behavior increased during self-observation of contingent verbal praise and negative commands. There was a significant decrease in noise level during the self-observation of positive nonverbal behavior and negative commands.

In Teacher 2's classroom, there was a decrease in inappropriate verbal behavior during the self-observation of negative commands, and in inappropriate nonverbal behavior during the self-observation of positive nonverbal behavior. On-task behavior increased during the self-observation of the positive nonverbal behavior and negative commands. Noise level decreased during the self-observation of contingent verbal praise.

Reliability of the External Observers

Daily percentages of agreement among the classroom observers ranged from 90 to 100 percent. The mean percentage of agreement for all phases was 98 percent.

Discussion

Several comments can be made about the effects of teacher self-observation on selected teacher and student behaviors.

1. The teachers' self-observations were reactive, i.e., self-observation was often associated with changes in the rates of the behaviors under self-observation. Reactivity was in the form of an immediate change in the self-observed behavior in a positive direction. Self-observation was associated with a significant increase in contingent verbal praise and positive nonverbal behavior by Teacher 2, and with a significant increase in positive nonverbal behavior by Teacher 1.

2. The reactive effects of self-observation were temporary. Even though self-observation was associated with a significant increase in Teacher 2's contingent verbal praise and positive nonverbal behavior and Teacher 1's positive nonverbal behavior, almost all behaviors declined significantly after self-observation was discontinued.

3. The accuracy of self-observation in a classroom setting varied depending on the behavior under observation and the context in which it occurred. The teachers, who were trained in a six-hour workshop in self-observation skills, attained accuracy percentages ranging from a mean of 41 percent per phase to a mean of 88 percent per phase.

4. Self-observation of teacher behaviors was associated with changes in student behaviors; 50 percent of the time, self-observation was associated with positive changes in student behavior.

Kazdin (1974), in reviewing the self-observation literature, concluded that in certain situations self-observation has positive effects on the behavior under observation. He further noted that the reactive effects often attenuate with time, and that the reactivity of self-observation does not depend on accurate recording. The data from the present study generally support these conclusions. Although self-

observation was associated with increases in two classes of positive teacher behavior (contingent verbal praise and positive nonverbal behavior), it did not influence a class of negative verbal behavior (negative commands). The reactive effects of self-observation attenuated during the self-observation phase in two instances and did not in other instances.

Compared to the findings of two pilot studies (Thoresen, Hubbard, Hannum, Hendricks, & Shapiro, 1973a, 1973b), self-observation in the present study was less reactive. This reduced reactivity may have been due to differences in the training experience and the experimental procedures. The self-observation training in both pilot studies was done by an experimenter who personally administered instructions, supervised role-playing, and played videotapes for the subjects. In the study reported here, training was done by means of a self-contained training program. The teachers trained themselves; the only interaction was among the participants. This method of training has the advantage of being portable and relatively standardized and the disadvantage of offering fewer opportunities for social influence processes to operate (Orne, 1969). If trainees are exposed to a group leader who is identified with the experiment, the leader's presence might represent a demand characteristic that is not present in the self-administered program. Clearly, additional studies are needed to clarify further the effective features of self-observation training and the effects of self-observation on specified behaviors. The present study is a beginning effort in that direction.

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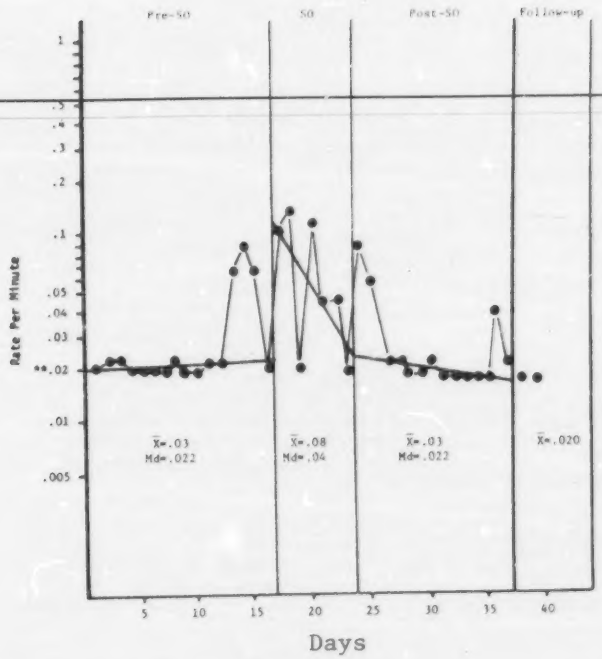
<table>
<tr><td>Contingent Verbal Praise</td><td>Baseline
9 days</td><td>Self-obs. Trng.
6 hrs.</td><td>Self-obs.
7 days</td><td colspan="2">Post Self-obs.
21 days</td><td>Follow-up (2 observations)</td></tr>
<tr><td>Positive Nonverbal Behavior</td><td colspan="3">Baseline
16 days</td><td>Self-obs.
7 days</td><td>Post Self-obs.
14 days</td><td>Follow-up (2 observations)</td></tr>
<tr><td>Negative Commands</td><td colspan="4">Baseline
23 days</td><td>Self-obs.
7 days</td><td>Post Self-obs.
7 days</td><td>Follow-up (2 observations)</td></tr>
</table>

Fig. 1. Treatment phases for Teacher 1. The treatment sequence was the same for Teacher 2, except that the baseline phases were 7, 14, and 21 days long and the total number of days on which data were collected was 35. Student behavior was observed during all three self-observation phases for each teacher, as well as during the baseline phases.

Teacher 1



Teacher 2

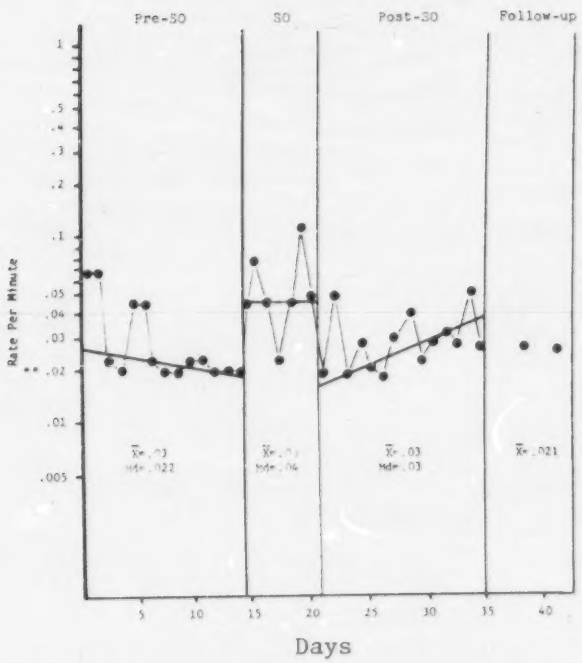


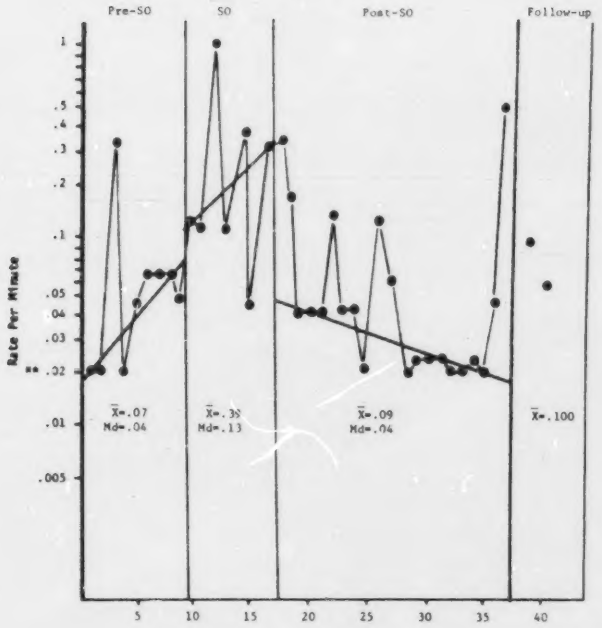
Fig. 2. Rate of positive nonverbal behavior before, during, and after self-observation.

TABLE 1

Binomial Test Probability Values for Overall, Slope, and Step Changes Between Phases: Positive Nonverbal Behavior

Phase	Teacher 1			Teacher 2		
	Overall	Slope	Step	Overall	Slope	Step
Pre-SO/SO	.227	.227	.0078	.0078	.0625	.0078
SO/Post-SO	.000061	.000061	.089	.0067	.000061	.000061

Teacher 1



Teacher 2

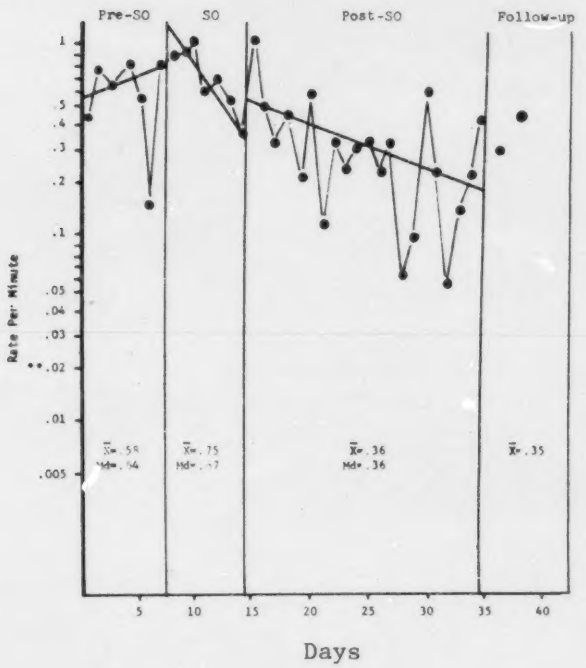


Fig. 3. Rate of contingent verbal praise before, during, and after self-observation.

TABLE 2

Binomial Test Probability Values for Overall, Slope, and Step Changes Between Phases: Contingent Verbal Praise

Phase	Teacher 1			Teacher 2		
	Overall	Slope	Step	Overall	Slope	Step
Pre-SO/SO	.227	.227	.227	.500	.0625	.0078
SO/Post-SO	.00000047	.00074	.00011	.0036	.0392	.332

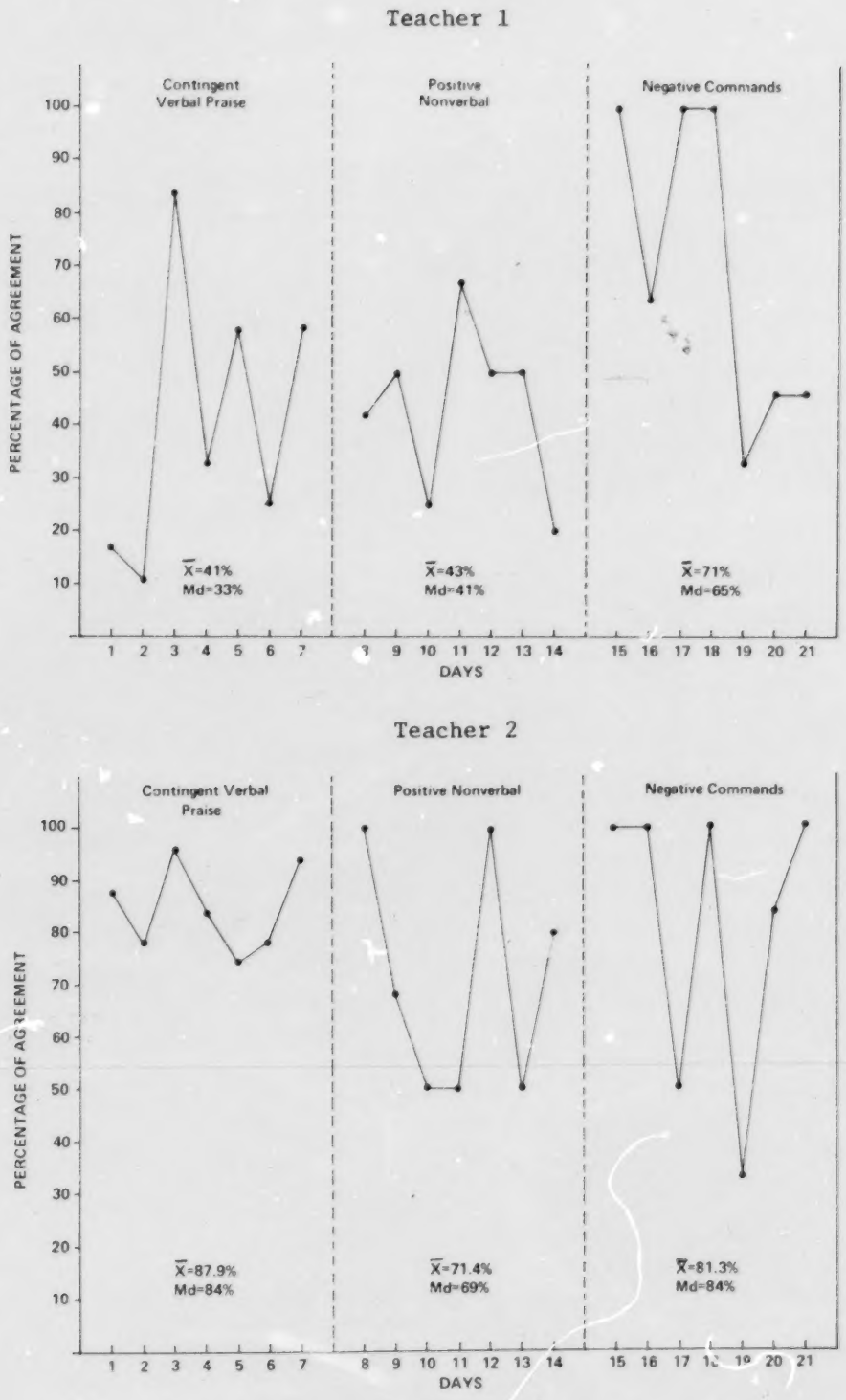


Fig. 4. Percentage of agreement between teachers' self-observations and external observers' observations.